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## United States Department of Agriculture

BUREAU OF BIOLOGICAL SURVEY

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DIRECTIONS FOR DESTROYING POCKET GOPHERS.<sup>1</sup>

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Pocket gophers infest all the States and Territories west of the Mississippi, and parts of Illinois, Wisconsin, Florida, Georgia, and Alabama. They occur also in southwestern Canada and over the greater part of Mexico. All the species live underground in ramifying tunnels, and all bring to the surface quantities of earth, which is heaped up in the shape of mounds. The habits of these animals are everywhere much the same.

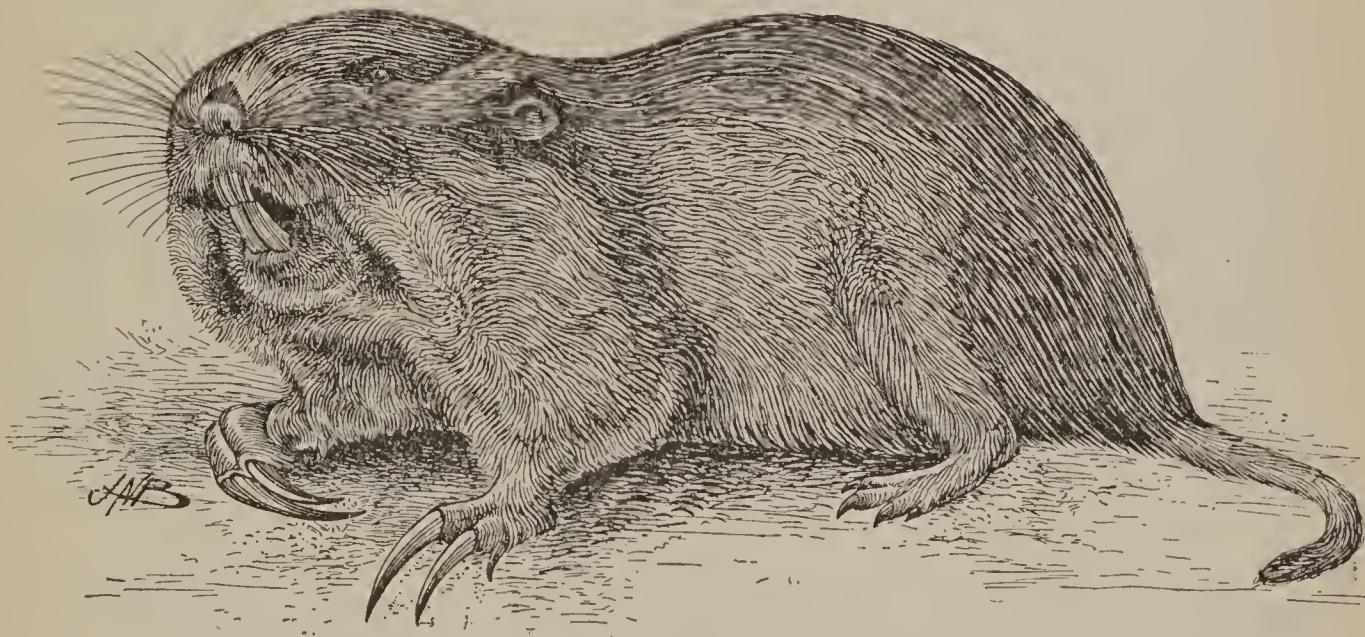


FIG. 1.—Mississippi Valley pocket gopher (*Geomys bursarius*). From a painting by E. T. Seton.

Throughout their range pocket gophers are very destructive to crops. They eat the roots of fruit trees and in this way sometimes ruin whole orchards. They eat both roots and tops of clover, alfalfa, grasses, grains, and vegetables, and are especially harmful to potatoes and other tuberous crops. Besides this, they throw up innumerable mounds of earth in meadows, pastures, and grain fields, which cover and destroy far more of the crop than is eaten by the animals or killed by having the roots cut off. These mounds also prevent close mowing, so that much of the hay crop is lost, and the pebbles they contain often break or injure farm machinery. The loss due to gopher mounds in the clover and alfalfa fields in some of the Western States has been conservatively estimated at one-tenth of the entire crop. In many of the

<sup>1</sup> Bulletin No. 5 of the Biological Survey, giving detailed information on the pocket gophers—their distribution, abundance, habits, injury to crops, methods of destruction, and so on—is out of print and no longer available for distribution. The present circular is intended to give brief, practical directions for killing the animals.

fertile valleys where they abound the animals are by far the most formidable of the farmer's mammalian enemies. In addition to all this, in the far west they burrow in the banks of irrigation ditches and thus cause extensive breaks, the repair of which results in the expenditure of much time and money.

Pocket gophers may be destroyed by poison, by traps, and by the use of carbon bisulphid.

#### POISONING POCKET GOPHERS.

Poisoning with strychnine is the most effective means known for killing pocket gophers, and, as it involves the least expenditure of money and labor, the Biological Survey recommends it for general use. As a rodent poison to be used by farmers, strychnine has several advantages. Its action is sure, its deadly character is known to most persons, and its bitter taste is an additional safeguard against mistaking it for a harmless drug. Strychnia sulphate is the most convenient

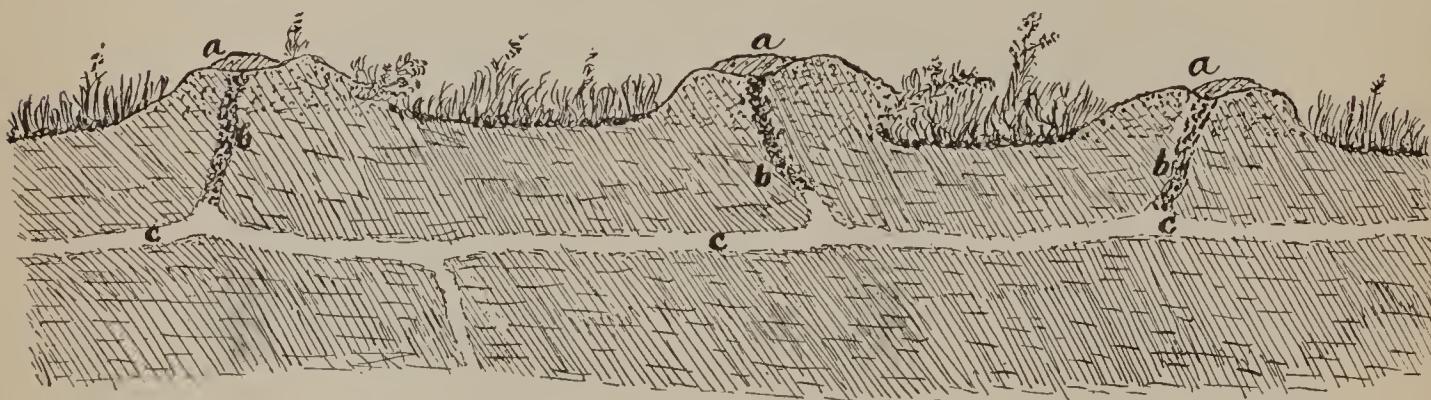


FIG. 2.—*a*, Mounds of loose soil; *b*, laterals leading to mounds, usually closed with earth; *c*, main runway, usually clean.

form of the poison, since it is freely soluble in hot water and in the natural juices of vegetables used as bait. To disguise its bitterness so that rodents may not be deterred from eating the baits, sugar is often employed, or the strychnine may be mixed with its own bulk of commercial saccharine. A sugar sirup poisoned with strychnine may be used with excellent results. It is prepared as follows:

Dissolve an ounce of strychnia sulphate in a pint of boiling water. Add a pint of thick sugar sirup, and stir thoroughly. The sirup is usually scented by adding a few drops of oil of anise, but this is not essential. If preserved in a closed vessel, the sirup will keep indefinitely.

The above quantity is sufficient to poison a half bushel of shelled corn or other grain (corn recommended). The grain is steeped in hot water and allowed to soak over night. It is then drained and soaked for several hours in the poisoned sirup. Before using, corn meal may be added to take up the excess of moisture.

Dry crystals of strychnine also may be used. They are introduced, by means of a knife, into small pieces of potato, carrot, or sweet potato,

or into entire raisins or dried prunes. A single large crystal (or several small ones) is enough for each bait. Raisins are especially recommended because they are easily handled and contain enough sugar to disguise the bitterness of the poison.

Pocket gophers in ditch banks may be poisoned in the following manner: Select the freshest hill or mound and with a narrow garden trowel follow the soft earth of the tunnel until the main runway (*c*, fig. 2) is reached. By noting the direction from which the earth was pushed out and locating the closed entrance, the burrow may be readily followed and the main runway quickly found. The poisoned raisin, corn, or small potato should be placed well back in the main runway and the opening closed. It is usual for one gopher only to occupy the burrows connected with a group of hills, and when the burrow remains open it indicates that the animal has been killed.

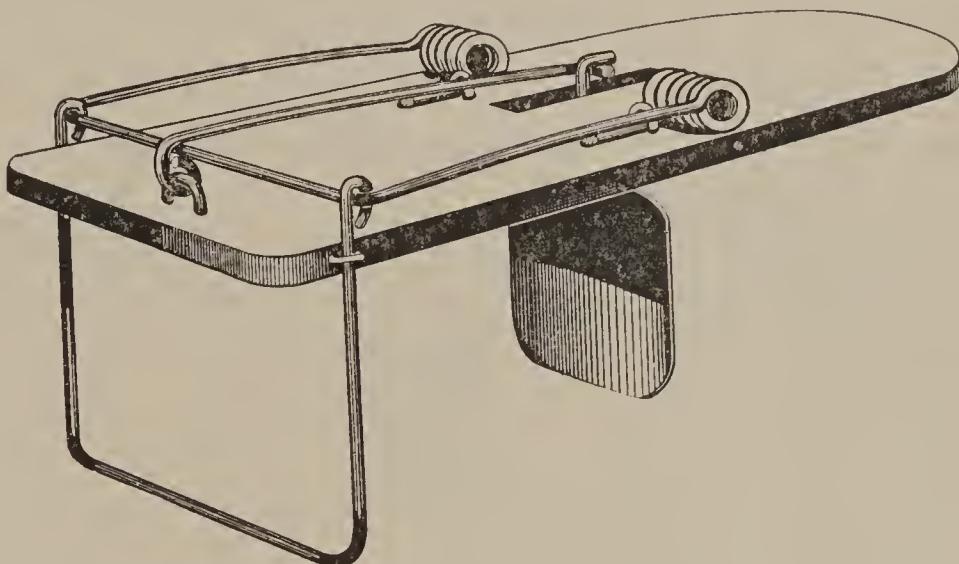


FIG. 3.—A type of gopher trap which has been used with success in California and other parts of the West.

#### TRAPPING POCKET GOPHERS.

Trapping is a successful method when followed intelligently and persistently. It is especially adapted to small fields, orchards, gardens, and irrigation embankments, where only a few gophers are present; but in the case of large areas that are badly infested, the method involves too much labor.

For trapping gophers an ordinary No. 0 steel trap may be employed with success, but there are on the market several special gopher traps which are better adapted for general use.

In using the ordinary steel trap, the first step is to make an opening into the main gopher tunnel. The trap should then be sunk so that the jaws are level with the bottom of the runway and lightly covered with green clover, alfalfa grass, or even loose soil, care being taken that these do not clog under the pan, or trigger. No bait is required. The hole should be just large enough to receive the trap and should be covered so as almost to exclude the light. Scalding the trap frequently to remove the animal odor is important.

Some of the special gopher traps possess the advantages of ease and simplicity of operation, and kill the animals instantly (figs. 3 and 4). These special traps should be set in the laterals leading into the main tunnel of the gopher, or at the entrance of open burrows where fresh earth is being thrown out. The trapper should choose the freshest of a series of mounds and dig along the lateral until it is found clear of soil.

#### CARBON BISULPHID.

Carbon bisulphid has been employed for killing pocket gophers, and under favorable conditions its use is recommended. If the burrows are extensive or the soil dry, the gases are dissipated so rapidly that a large quantity of the liquid is required to kill the animals and the method becomes too expensive. If, however, the burrows are simple and the soil moist, bisulphid may be used successfully. For pocket gophers an ounce of the liquid for each burrow is sufficient. The carbon bisulphid is poured over a bunch of cotton, rags, or other waste material and this quickly pushed into the burrow, which should be closed at once.

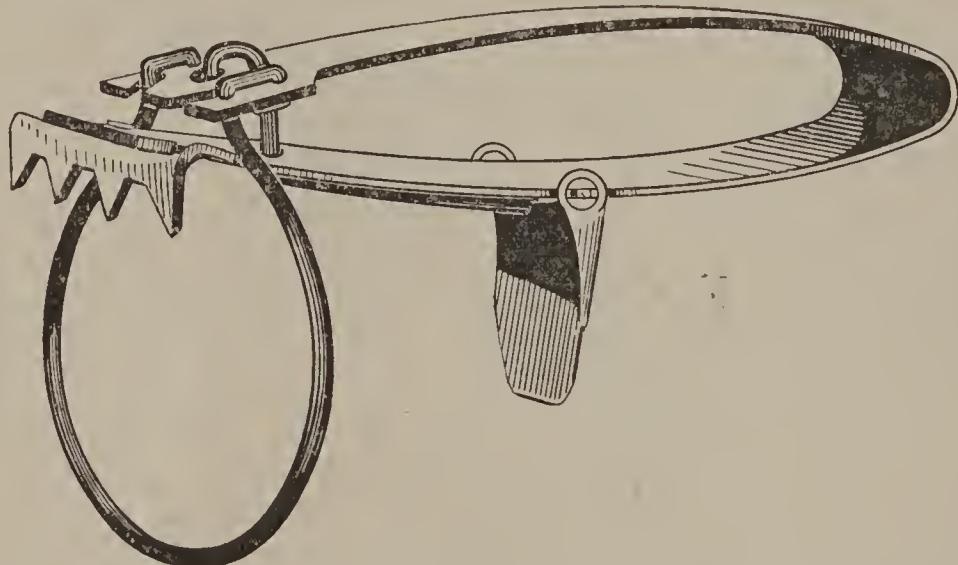


FIG. 4.—A simple and effective type of gopher trap, easily set in a variety of positions.

#### COOPERATION.

Any farmer may readily rid his premises of gophers by the use of poison or traps. Unless, however, the entire community unites in active and intelligent cooperation in the destruction of the animals, the cleared area will be sooner or later invaded from neighboring premises, and the work of destruction must be repeated. Cooperation only will effect a radical cure. When cooperative efforts for the extermination of gophers over a considerable area are attempted, careful attention must be given to waste lands along fences, streams, public highways, and railroads. Such places are favorite haunts of the animals, because in them are found loose, sandy soil, moisture, and succulent roots for food. It is from such resorts that adjoining premises are often restocked with pocket gophers.

Approved:

JAMES WILSON, *Secretary.*

WASHINGTON, D. C., *August 24, 1908.*